

NOTE-BOOK

ステップの

おさらえ

I

1947

Kyôto

Weaver and Albertson, 1940.

1933-1939, 7年 = 0.27 general desiccation 3.25 17
 而印 1方 = 1. 雨量 4' 150mm 3.35, (7年 1/3.)
 6 inch 17 inch

desiccation + overgrazing, combination = 3.0
 deterioration 3.75; 1/1 阶段 1.5, behavior of vegetation

- 1) mid-grass 1 + 2 + 4 + 1
- 2) cacti, 1 + 2 + 4 + 1
- 3) perennial grass 5 + 11, 阶段 3 阶段 2 1 — 1
 5 + 11, 100%, 阶段 3 阶段 2 1 short grass plain 5 + 11
 (fig 4, 6, 7 等) — 4 + 11 7 + 1 weedy annual 5
 1 + 11 5 + 11, 11 3 = perennial 5 + 11

#5 = 1/2 1 + 2 + 1 dust = 3.0 vegetation 1 + 2 1 5 + 1 1, 3 + 1
 heat + drought 5 + 11 3 + 11 overwhelming + denudation
 3 + 1 1 + 1 5 + 1 p. 223 — 240 = high temperature +
 rainless summer + high wind 5 + 11 5 + 1 1 —
 1 + 11 1/1 2 1 1 2 = 2.0 — 1/1 parched cropland
 wind erosion = 3.0 1 + 1

short-grass cover 5 + 11, 1 + 2 1 1 + 2 1 (1 inch vegetation 1 + 2 1 1)

- 4) 1/1 1/2 = most resistant + most ubiquitous +
 Russian thistle (annual), pure stand 5 + 11 dust = 1 + 2 1
 + 5 + 11 dust mound center 5 + 11 5 + 11 or more =
 (5 + 11) 1/1 = dust mound / nucleus 5 + 11

* Salsola

1/1 L = grasshopper 5" ± 2" — stock 7 10 = 11" ± 7" —

9R 5 5 Russian thistle 5" ± 2" 5" ± 2"

5) 7 1 = mat-like + *Monolepis outalliana* 5" ± 4" ± 2"

7 2 5 2 pasture 5" ± 2"

2 4 5 short-grass disclimax / succession 7 2 4

- p. 276 = The mixed prairie, distinguished by more or less distinct layers of mid grasses and short grasses, has, at least in the several thousand square miles examined, almost entirely been converted into short-grass plains. This has resulted from the loss of the mid grasses.
- [Before the great drought, it is true, there were many ranges that had lost most of the vegetation of the upper layer through continuous overgrazing. But relicts were always present and usually abundant in wet years. Moreover, adjacent grassland less severely abused showed clearly the true nature of this relationship. This grazing disclimax is much more pronounced today, and extends quite to the eastern border of the association. ---
- This conversion of mixed prairie to a short-grass disclimax is indeed one of the most interesting features of this grassland.

Weaver and Clements 1874 (1929) 77,
short grass plain as subclimax 77 - evidence 77

In all protected places, as well as in those where sandy soil or broken topography increase the water available, the mid-grasses still persist. Even more convincing evidence has been secured from enclosures fenced against cattle, in which the mid-grasses return in a few years. Finally, when the pressure of grazing is offset by normal or excess rainfall, the taller grasses are also able to compete with the short ones on equal terms or even to dominate them more or less completely. (p. 465)

short grass plain 77 77 77

Larson, F. 1940

Texas = 77, 1876 = 77 cattle 77 77
p. 113. They say this period marks the beginning of the modification of the mixed prairie by overgrazing of domesticated animals, resulting in what is called the short grass dis-climax (disturbance climax) of the Great Plains (Weaver and Clements, '38, p. 524), the prefix 'dis' in this case denoting separation and unlikeness or derogation.

Weaver and Clements .. p. 525 = 77 77
--- the mixed prairie formerly stretched from northern Alberta and Saskatchewan through the Staked Plains of Texas and from central North Dakota and Oklahoma on the east to western Wyoming and eastern Utah and southwestward through northern New Mexico and Arizona to the Colorado Valley. The climax was said to be composed of both mid and short grass on more or less equal terms, the major dominants being *Stipa comata*, *Sporobolus cryptandrus*, *Agropyron*

smithii, and *Koeleria cristata* among the mid grasses and *Bouteloua gracilis* and *Buchloe dactyloides* among the short grasses. Over the drier portion of this area overgrazing by domesticated stock is said to have so handicapped the taller grasses and favored the short grasses that the taller species practically disappeared, leaving an erroneous impression that the short grass plains is a distinct climax of xerophytic nature (p. 524).

To support the position that overgrazing by domestic animals is responsible for the occurrence of the short grass plains three sources of evidence were listed (p. 525) in the text quoted above: (1) the dominance or reappearance of the taller grasses under protection from grazing, (2) rapid reestablishment of the taller grasses in wet years, during which the bad effects of overgrazing are offset by better growing conditions, and (3) photographs of the Hayden Expedition in 1870 which show the domination of the Great Plains by mid grasses.

(前記、35頁、36頁)

即ち、 $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$ = Buffalo + 10% wild animals
 1 grazing = 34%, 2% = short grass plain + 1% + 1%
 34% = 34% + 2% + 34%, 2% short grass plain
disclimax = 34% true climax = 34% + 1% + 34%
 ∴ p. 114 =

Clements (36) wrote, 'At the outset it was recognized that animals must also be considered members of the climax, and the word *biome* was proposed for the purpose of laying stress upon the mutual roles of plants and animals.'

Clements and Shelford (39, p. 20) stated that 'The *biome* or plant-animal formation is the basic community unit; that is, two separate communities, plant and animals, do not exist in the same area.'

Weaver and Clements (38, p. 86) took the position that disclimaxes are almost always the result of disturbance by man or domesticated animals or by the introduction of alien species, and that 'man alone can destroy the stability of the climax

during the long period of control by its climate (pp. 80-81).

They stated further (p. 498) that animals occupy a position in the climax community similar to that of subdominant plants. It follows then that under the existing definitions of biome and disclimax the latter term could not be used to express conditions brought about by normal grazing of wild animals in their pristine numbers. If, as is the purpose of this paper, it can be shown that buffalo and other wild animals kept the drier portions of the plains in short grass, then we have not a short grass disclimax but a short grass climax.

Larson / critique.

1). grazing vs protect + 1/2 to 1/4 = mid grass or dominant 7/11. 1/2 to 1/4 appear 1/2 to 1/4 = 2/3 to 1/2.

North Dakota, South Dakota + 1/2 to 1/4, 1/2 to 1/4 x 1/2 to 1/4 in portions of eastern Colorado and Wyoming and western Nebraska the dominance of taller grass in protected areas is questioned by some investigators who feel that some local dry-climate parts of the plains are too dry to support mixed grass. (p. 114) in protected area 1/2 mixed prairie 1/2 to 1/4 = 1/2 to 1/4 original condition 1/2 buffalo or grazing 1/2 to 1/4 = 1/2 to 1/4 mixed prairie 1/2 to 1/4 = 1/2 to 1/4, 1/2 to 1/4 = 1/2 to 1/4.

i.e. p. 114. The development of the Relict Method (Clements 34) has meant much to the furtherance of the study of ecology. As Shelford (31) observed, however, the investigator using this method should always take care to include animals in their early or original members, for animals and plant communities have always been interdependent and intimate in their relations. In

recognition of the peculiar significance of buffalo in determining the aspect of the plains he suggested the name Bontelona-Bison climax. While most plant ecologists have recognized the part of animals in the climax, it seems that in the case of the short grass plains some investigators have apparently failed to appreciate the fact that heavy populations of wild grazing animals would have the same effect on the range as heavy population of domestic animals.

2) wet year = taller grass 5' ~~5R~~ 200% short grass plains = 75% taller grasses / former codominant position = 25% evidence 75% ~~15%~~ = 25%.

p. 115. With moisture being the common limiting factor to vegetation on the plains it is easy to see now the occasional 'desert year' beats back the taller prairie grass species that invade the short grass domain in the more favorable seasons. Reestablishment of the taller grasses in wet years is only the expression of the plus phase of the climatic cycle and, as pointed out above, it is minimal and not maximal quantity that becomes the deciding factor in plant reecesis. Reestablishment of taller grasses in wet years cannot then be used as evidence that the taller grasses are true codominants, because the dry years have more significance in determining the plant composition.

3) Hayden Expedition photograph of mixed prairie
 7 既 25 4 11, ii. short grass plain of overgrazing
 1 結果, 3 17, mixed prairie of 2 17 17 17 17 17
 11 17 17, 11 17 17 17 17 17, 11 17 17 17 17 17
 (1870)

i. Hayden report: "101st meridian of 西 F",
 buffalo grass + grama of only grasses listed of
 importance 17 17, 17 17 Nebraska, 西 F = short grass
 17 17 17 17 17 17, 17 17

ii 17 17, 17 17, geological formation 17 17 17, stream
 + valley = 17 17 17 17 17 17, 17 17 17 short grass
 plain, 17 17, tall grass taller grasses of dominant
 17 17, 17 17 17 17 17

iii 1870 = 17 17 = buffalo-slaughter of 17 17 17 = 17 17 17 17
 17 17 17 17 17 17 17 17, 17 17 livestock of 17 17 17 17
 17 17 17 17 17 17 17 17, ii the reduced grazing
 incident to the reduction of buffalo was favorable
 to the increase of taller grass, and the period
 1865-1875 was an interim of undergrazing
 and was therefore atypical. (p. 115)

Clementon settlement 17 17, 17 17 = short-grass
 plain, 17 17 17 17 17 17 17, 17 17 natural + 17 17 17
 17 17 advancing settlement = 17 17 buffalo, 17 17 = 17 17
 17 17 buffalo, zone of concentration = 17 17 17
 17 17 17 17 17 17.

ie. He said (28, p. 385) 'The obvious explanation
 is that while they have been associated in the
 mixed prairies for thousands of years, the tall
 grasses were kept down by the buffalo in the
 zone of concentration resulting from advancing
 settlement. They reappeared with the going of
 the buffalo, and the disappearance of the buffalo
 grasses was nothing more than their being
 overtopped by bluestems.' (Larson p. 116 = 17 17)

17 17 17, Seton (29) 17 17 17, Clements, 17 17 17 17 zone
 of concentration 17 17 17 17 17 17 17 17, ie. 1870 = 17 17
 buffalo 17 17 = original population, $\frac{1}{4}$ = 17 17, 17 17 range
 17 17 former range, $\frac{1}{3}$ = 17 17 17 17 17 17
 17 17 buffalo slaughter 17 settlement / advance =
 17 17 17, buffalo country, 17 17 17 17 17 17 17 17
 17, 17 theory, 17 17 17 17 17 17 17 17 = 17 17 17 17. But the

most convincing evidence is the Journal of Lewis and Clark. These men penetrated a vast domain which was unexplored and practically unknown to white men, yet they reported short grass plains to be general throughout the journey across what is now the Dakotas and eastern Montana. (p. 116).

Clements' natural condition = $x \pm n$ buffalo =
211 over grazing $7 \frac{1}{2} x + 1$.

i.e. 116 =

Clements ('36) evidently recognized Seton's (Seton '29) estimates of the former population of buffalo and other wild animals but summarily disposed of the possibility of close grazing with a statement that they were distributed over a large area, and the general migratory habits of the animals were such that serious effects from overgrazing or trampling were only local or transitory. He also stated (Clements '35) that the 'co-action of animals grazing are relatively insignificant in nature and rarely become considerable or controlling until man enters the situation'.

Bison 牛 1251 750 742

p. 116

Clements and Shelford ('38, pp. 264 and 273) estimated the number of buffalo in the plains at 30 million and the population in the prairie at 12 million. They estimated the number of antelope in the plains at between 4 and 8 million.

210 250 Seton's estimation 117111 p. 117 = 74.

Seton's estimate of 20 million buffalo on the plains in pristine times was on the basis of 30 acres per head per year. In comparison, some of the better short-grass ranges cannot at the present time properly support more than this ratio of animals. A buffalo requires about the same amount and kind of feed as a cow, so it is evident that if Seton's estimate of 20 million or Clements and Shelford's estimate of 30 million buffalo in early days on the plains is anywhere near correct these animals were sufficiently numerous, along with the 4 to 8 million antelope and extensive herds of elk, deer, and other

with the same to hold the same position as the
plateau - in short grass stage.

1881-1882. 1st year, vegetation at 10, 20, 30 ft.
The vegetation is 10 ft. high, from the same
country - 10 ft. 10 ft. 10 ft. 10 ft. 10 ft.
1882 - 1st year, vegetation at 10, 20, 30 ft.

1883 - 1st year, vegetation at 10, 20, 30 ft.
1884 - 1st year, vegetation at 10, 20, 30 ft.

1885 - 1st year, vegetation at 10, 20, 30 ft.
1886 - 1st year, vegetation at 10, 20, 30 ft.
1887 - 1st year, vegetation at 10, 20, 30 ft.

1888 - 1st year, vegetation at 10, 20, 30 ft.
1889 - 1st year, vegetation at 10, 20, 30 ft.
1890 - 1st year, vegetation at 10, 20, 30 ft.
1891 - 1st year, vegetation at 10, 20, 30 ft.

1892 - 1st year, vegetation at 10, 20, 30 ft.
1893 - 1st year, vegetation at 10, 20, 30 ft.

1894 - 1st year, vegetation at 10, 20, 30 ft.
1895 - 1st year, vegetation at 10, 20, 30 ft.

The present condition of the Great Plains is
essentially the same as that described by
early travelers. The prevailing grasses are
still the buffalo and prairie, of low value.
The immense number of cattle in the country
day, and later of cattle have not been
sufficient to produce any marked change
in the character and amount of range
forage upon this area.

* Wilcox, E. V. 1911. The grazing industry.
Bull. Hawaii Agricultural Experiment
Station.

* This community owes its name to the fact that the climax comprises both mid grasses and short grasses, on more or less equal terms.

(W. & C., '38, p. 523)

When the pressure of grazing is offset by normal or excess rainfall, the taller grasses are also to compete with the short ones on equal terms or even to dominate them more or less completely.

(Ibid., p. 525.)

**

The andropogons are not only distant relatives of corn, but they are likewise subtropical in origin, as is *Sporobolus* also. On the other hand, *Agropyron* is closely akin to wheat and like the needle grass (*Stipa spartea*) characterizes a temperate climate.

(Weaver & Clements, '38, p. 459.)

[mixed prairie] *

mixed prairie + true prairie - 0.14

The transition from the true to the mixed prairie is very gradual and the corresponding section accordingly broad. The last point is set by the disappearance of *Stipa spartea* and *Sporobolus asper*, which are replaced in the mixed prairie by very closely related species *S. comata* and *S. cryptanthum*.

(C. & W., p. 524)

mixed prairie + western hard boundary

the western falling near the line of 10 inches in general.

(Ibid., p. 524)

mid grass + short grass - origin & origin **

The mid grasses are circumtropical in origin, the short grasses subtropical and the tall grasses of the periclimax southern or subtropical as a whole. Ecologically speaking, several species of *Andropogon* are included among the short grasses, though they

contrast there are variations in distribution

(C. & W. p. 44)

mixed prairie = 70% *Hesperis matronalis*

The typical effect is that of a very open prairie

that is conspicuous of all the *Hesperis* type, but there are indications of the deciduous due to overgrazing. (C. & W. p. 44)

mixed prairie = 70% *Hesperis matronalis* + tall grass community (C. & W. p. 44)

The typical effect is that of a very open prairie, but there are indications of the deciduous due to overgrazing. The tall grass community is not very common in the stream valley, but also in large areas of uplands and river dunes and prairie bluffs or barrens and escarpments. These species of *Hesperis*, usually, are more or less regularly typical of it.

For former climaxes, relict *Hesperis* is a relict method of

mixed prairie = 70% short grass community. The dominance of the short grasses is a result of overgrazing. (C. & W. p. 44)

The reduction or suppression of the tall grasses depends primarily upon the intensity and duration of grazing, but it is also

related to rainfall and more increase to the
northward as a rule. It is likewise subject to
marked variation, the mixed competition being
most abundant in years of high rainfall and
being correspondingly diminished during drought
periods (W. & C., 1938).

The dominants of this association are mid grasses of
both the sod and the bunch life forms. 171

tall grass "settlement" = on bunch grasses / destruction
= 侵入 侵入 侵入 侵入 侵入 侵入 侵入 侵入 侵入 侵入
= 侵入 侵入 侵入 侵入 侵入 侵入 侵入 侵入 侵入 侵入
(W. & C., '38, p. 519) (Ibid. p. 469)

True prairie (C & W: 461)

dominant

major dominants are bunch grasses
(e.g. *Andropogon scoparius* and *Andropogon
Sphaerocarpus* and *Sporobolus vaginatus*)
are the two most characteristic dominants
since they do not occur at such in
any other association.

Such short grasses as *Bouteloua gracilis*,
Bouteloua dactyloides are not infrequent
but they constitute a relatively small
extent, except where favored by
fire-grazing.

(C & W: 461)

In western portions of the association
another distinctive feature is to be found the
pastures, where compacted sods have
led to the production of a hardpan
sod similar in many respects to that
found in the true prairie.

W. & C.
'38
p. 518
p. 469

True prairie (C. & S. 1883)

Valley upland constitutes a patchimax to the true as well as to the mixed prairie, though the higher precipitation renders it much higher in tree dominance. Lots of similar composition also occur in extensive tracts that simulate climax prairie, owing to the local compensation afforded by sandy soil or mountain patches etc.

* W. R. C., 38, p. 520 =

It is predimax to the forest and may also serve as a subclimax in its development; at the same time it is a patchimax to the true prairie.

1899. 18 2624 SAVANNA #711.

True prairie

2024 SAVANNA #711

C. & W. 1 subclimax prairie 1899.

1899 Feb? p. 462: It consists of tall grasses often 6 to 8 feet high and belonging mainly to the sod-forming type. Over most of the area the major dominants are the three species of *Andropogon*, viz. *furcatus*, *nuttallii* and a tall form - *serotinus*, *monstrosus*, etc. True prairie (underwater) *Stipa spartea*, *Sporobolus airoides* (true prairie domin. ant.) & more or less abundantly?

~~2024~~ 1899. 18 2624

The reciprocal withdrawal of the grasses did not take place, partly because they adjusted themselves to the increasing rainfall, but chiefly because they adjusted themselves to their competition with the existing trees & shrubs. In anything more than an exceedingly slow advance of the latter, as a consequence this subclimax has persisted for thousands of years ... 1899

Crataegus

Crataegus is a genus of plants in the family Rosaceae. It is native to North America and Europe. The plants are characterized by their thorny stems and small, white flowers. They are often used as ornamental plants and for their fruit, which is a small, round berry.

The leaves of *Crataegus* are alternate, ovate, and serrated. The flowers are small and white, and they are often found in clusters. The fruit is a small, round berry, and it is often used as a food source for birds and other animals.

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California prairie—11011
 savanna 11011
 prairie 11011
 11011

dom. *Stipa pulchra* (bunch)
Pharus hirtellus (seed)
 1. *glauca* (bunch)

Sparganium angustifolium
Pharus hirtellus

Pharus hirtellus
Pharus hirtellus
Pharus hirtellus

Pharus hirtellus
Pharus hirtellus
Pharus hirtellus

California prairie
 richy 11011
 11011

dom.
Agropyrum elatius (bunch)
 11011 *Agropyrum elatius* (bunch)
 11011

120 shot grass 11011 (C.W. b. 422)
 overgrazing 11011 \times *Bromus*
 savanna 11011

sagebrush *Artemisia tridentata*
 - 2 true sagebrush clumps
 11011

11011
 11011
 11011

120 shot
 overgrazing 11011
 11011
 as if *Larrea* in desert plain
Bent
Pharus hirtellus
 11011

1. $1/10$ test book, all the ...
2. ...
3. ...

Stip. dominant - 1st. - hypochaeris - hypochaeris
 - hypochaeris - hypochaeris - hypochaeris
 - hypochaeris - hypochaeris - hypochaeris
 - hypochaeris - hypochaeris - hypochaeris

** hypochaeris - hypochaeris - 2.

... hypochaeris - hypochaeris - 1st. - hypochaeris
 - hypochaeris - hypochaeris - hypochaeris - hypochaeris

Stip. dominant - 1st. - hypochaeris - hypochaeris

Stip. dominant - 1st. - hypochaeris - hypochaeris
 - hypochaeris - hypochaeris - hypochaeris

1. soil - hypochaeris (p. 12)

a. fine sandy loam soil -

Stipa comita, Stipa capensis, Stipa pennica

** Stipa - Stipa - Stipa

b. silt loam soil - Stipa - Stipa

Agropyron smithii, Agropyron - Agropyron

** Agropyron - Agropyron - Agropyron

17 Andropogon scoparius - south wind 230 - Andropogon
 - Andropogon - Andropogon - Andropogon
 - Andropogon - Andropogon - Andropogon

patellina grasses - patellina - patellina

2. soil - 441 - hypochaeris - hypochaeris

a. fine sandy loam soil - hypochaeris

coefficients - 2 - 6 percent - hypochaeris

b. silt loam soil - hypochaeris - hypochaeris

10 - 12 percent - hypochaeris - hypochaeris

type: no conclusion

It was this problem, for example, to find
the composition of sand and gravel and
the composition of the sand and gravel - blue sand,
and the composition of the sand and gravel
and the composition of the sand and gravel
and the composition of the sand and gravel
(p. 207)

and the composition of the sand and gravel

207

See also

form: abundant in the sand and gravel

- 1) sand and gravel
- 2) sand and gravel
- 3) sand and gravel
- 4) sand and gravel

5) sand and gravel

6) sand and gravel

7) sand and gravel

A field plot was found only in the sand
completely dominated by sand and gravel
in the sand and gravel and the sand and gravel
and the sand and gravel

- 23 - In the sand and gravel were usually found
to establish a stand of sand and gravel
and sand was planted, but it is to be found
required under normal weather conditions
establishment of sand and gravel

land utilization

The early annual forb stage of succession may be eliminated by planting seed of western wheatgrass. A full stand of western wheatgrass should be attained in two to three years under normal precipitation when seed is sown. The native bunch grasses may be permitted to enter abandoned fields, or should it be found desirable to keep the fields permanently in western wheatgrass plowing may be done in early spring to destroy the bunch grass and promote growth of western wheatgrass by decreasing competition between its own stems and roots.

(p. 328)

蒙古草原 = 蒙古草原 + 2.2 mongolian grassland,
類型 + American grassland, 1.1, 比較

- 1) 西草 + 東草, 4.5, 1.1 冬雨 + 夏雨, 4.5
2.7, 1.1 = california prairie + palouse prairie
2.5 = 1.1 2.2 = 2.2 2.2, 1.1 2.2
- 2) california prairie + 1.1 2.7 + 1.1 2.7 + grassland
= eastern Asia 1.1, 1.1 2.7 + 1.1, 1.1 = 1.1 2.7 + 1.1
1.1 2.7 + 1.1, 1.1 2.7 = 1.1 2.7 + 1.1 2.7 + 1.1 2.7 = 1.1
1.1 2.7 + 1.1 2.7 = 1.1 2.7 + 1.1 2.7, 1.1
1.1 2.7 = 1.1 2.7 + 1.1 2.7, 1.1, dry → wet =
- 3) 2.2 2.7 + 1.1 2.7 + 1.1 2.7, 1.1 2.7 + 1.1 2.7, 1.1
1.1 2.7 = 1.1 2.7 + 1.1 2.7, 1.1, dry → wet =

desert scrub → desert plains → shortgrass plains*

→ mixed-grass prairies* → true prairies*

1.1 2.7 + 1.1 2.7.

4) 2.7 life form (formation) = 1.1 2.7 + 1.1 2.7

* 1.1 2.7 1.1 Carpenter, J. R. 1940 = 3.1

	<i>Sporobolus vagans</i> <i>Andropogon</i> <i>Sarcobatus</i>	mixed prairie	trns. prairie	coastal prairie	desert plain	california prairie	palouse prairie	short grass prairie
<i>Stipa comata</i>	•							Stipa, TB = 0.5
<i>S. spartea</i>		•						
<i>S. leucotrichia</i>				•				
<i>S. pulchra</i>						•		
<i>S. occidentalis</i>								
<i>Agropyron</i> <i>smithii</i>	•	•	•			•	•	
<i>A. spicatum</i>						•	•	
<i>Bouteloua</i> <i>gracilis</i>	•	•	•		•			
<i>Buchloe</i> <i>dactyloides</i>	•	•	•					

mixed grass prairie ≈ 1
accumulation $\approx 5-6$ ft = 0.14.

** soil / 方 ≈ 1 IN, a layer of carbonate accumulation
With increasing water penetration, the carbonate
layer becomes deeper and in the tall-grass prairies
entirely disappears. $2000 \approx 7$ B 14 = 2021 ≈ 7 514

scrub + annual grasses! \rightarrow shortgrass \rightarrow short grass
perennial or annual
 \rightarrow { short grass \rightarrow mid grass
mid grass \rightarrow tall grass

5) 207 dominant, genera ≈ 2 22 2.4 3.1

Larrea \rightarrow Bouteloua \rightarrow { Bouteloua
Buchloe

\rightarrow { Bouteloua, Buchloe \rightarrow { Stipa, Sporobolus
Stipa, Agropyron Andropogon

6) 1207 mixed-grass prairie-plains \rightarrow Stipa +
true prairie + 45% dominant = \approx Stipa, 22 22 22
45% 1207 IN. 22 22 22 22 22 22 22 22

20.2 = 22 = \approx Stipa baicalensis = 22 22 22
Stipa, TB = 22 22 22 22 22 22 22 22

IN. 22 = 22 IN. mixed-grass steppe + true prairie:
3 ~ tall-grass* steppe + 22 22 22, grass 22 22 22 22 22
22 22 22 22 22 22 22 22 = 22 22 22 22 22 22 22 22

* 22 IN 1.5-5 ft, 22 IN 1.5-8 ft.
sod type 22 22

America, grassland = dominant
+ grass, 7/8 the 10/10.

<i>Bouteloua gracilis</i>	blue grama grass
o <i>Buchloe dactyloides</i>	buffalo grass
<i>Aristida</i>	wire grass
<i>Sporobolus</i>	dropseed
<i>Koeleria cristata</i>	june grass
o <i>Agropyrum smithii</i>	western wheat grass
<i>Stipa comata</i>	western
<i>Spartina</i>	tall marsh grass
<i>Elymus</i>	wild rye
<i>Panicum</i>	tall panic grass
<i>Andropogon</i>	bluestem